



Application number: 09/901,961
Examiner: Hillery, Nathan

Filing Date: 07/10/2001
Art Unit: 2176

Patent application
of
Hai Shum

Title: On Screen Vocabulary for
Ideographic Word Organizing and Searching

Background of the Invention

1. Technical Field

This invention relates to a method for entering ideographic words into a modern computer, and more particularly for entering Chinese words into a computer with a Chinese language operating system installed.

2. Background Art

Chinese language is completely different from English. Typewriting Chinese words into a

modern computer equipped with an English keyboard was not possible until about twenty years ago. Since then, nearly a thousand inventions to solve this challenging task have patented world wide. Among these inventions, the majority is the kind that adapted the concept of English typing, using the alphabet keys of the keyboard spells out the Latin spelling of Chinese words, or using the keys, each of which is assigned with a few strokes and a few radicals of the nearly two hundred radicals from dismantled Chinese words, re-assemble the words from these strokes and radicals.

These methods are currently utilized. However, they have limitations from their origin.

For the people, whose first accent is Mandarin or accents similar to Mandarin; the Latin spelling methods do not require a serious training. Due to the fact that many words share similar spelling, to be able to pronounce the words correctly is required before conducting the typing task. It is known that a same spelling usually stands for numerous words, which are completely different in their meanings, as well as in their appearances; these same pronunciation words are distinguished from each other by the four tones. And more difficult is that a same tone of the same pronunciation represents multiple words in various meanings. To compensate this character of this ancient language, to identify the desired word, a list of these words related to the same spelling is shown in a small window, the typist is required to tap in a number associates with the word to select it. This selecting process reduces the speed of typing. The typist has to try a few attempts to find the target word. For the people, who are not familiar with the standard Mandarin, this spelling method often becomes a mission impossible.

Currently, the majority of professional typists uses the stroke methods, which typewrites the strokes and radicals as components to rebuild words. Or, identifying the four corners of

these ideographic square shape words, assigning corners with three digit numeral codes, re-assemble words while typing these codes.

It is necessary to point out that the English words are assembled by uniformed alphabets, in a horizontal continuance matter. The Chinese words are two dimensionally assembled by strokes. There are no standard length, no standard angle for the strokes. Each word is irregularly tailored. Each single Chinese word can be willingly dismantled into a few different sets of strokes. Each single word can be seen as a combination of a few different sets of strokes. Typists have to memorize the orders of the assembly of all the words. After a period of very serious training, professional typists are able to input Chinese words in high speed. The typing is stressful. Furthermore, Chinese word structures are different between the traditional form and the simplified form. These stroke methods are based on the structure of the word. One stroke method can only work for one form of Chinese language. That gives limitation from their origin. People, who is familiar with Chinese language, who is knowledgeable in computer, but still unable to typewrite, unwilling to learn typing is a common phenomenon. Many intellectuals still keep hand writing.

These input methods are not profound strategic solutions.

Each Chinese word is a unique piece of art. To keep its integrity has been demanded for generations. There are some inventions patented to input the integral Chinese words, using the cursor to select the words from a list displayed on a device. This method shared a common requirement with the methods described above to have an internal Chinese vocabulary in storage. Instead of match each typed set of Latin spelling or set of strokes/radicals/codes to the corresponding internal stored word, this method copies words

directly from the word display to the word processor. In addition, these methods substantially reduced the dependence of the English keyboard.

Among the inventions of this kind, a patent issued by China to HouYi-bin and Feng xiu-zen, in July 1989, application number 88103689.7, title: 'Method of Inputting Chinese Words to Computer by Selecting Words on Screen', is the first one to use the technic of selecting an item on screen with the pointing device to enter Chinese words to Computer. This invention disclosed the usage of floating windows carrying Chinese words on a Chinese operating system platform. This invention mentioned using radicals for word group indexing, displaying all the radicals found in the <<New Chinese Dictionary>> on screen, selecting the one leading to the desired word and having all the words under that radical displaying on screen in a second window. As broadly known by all, radicals are the roots of words, one radical possibly stands for a few hundreds of words or only a few. Without dividing words into level of using frequency, searching will not be easier. Another shortcomming of this invention is that it did not utilize the existing keyboard.

An U.S. patent, No.4951033, issued in Aug.1990 to Sakaguchi, describes a system and method to input integral words. This invention was applied in 1987, a continuation of the application of 1984, when the modern word processor wasn't available, at the time a personal computer had small internal memory. This invention created 20 word groups, each carry 8 words, which is not sufficient for normal practical use. It didn't reveal a method of organizing and searching a large volume of words.

Microsoft's program 'Word Perfect'; a publication by Simpson, Allen 'Mastering WordPerfect' have a step by step, clear discription of selecting a word or a symbol from a window having as much as 1400 items.

An U.S. patent issued to Rennison et al. in Nov. 2000, No. 6154213, was a giant leap of the innovations of this kind. It offers a effective word searching method that is feasible. It mentioned using “frequency thresholds” to classify words, but no disclosure of the levels of the thresholds, no disclosure the number of the thresholds, no disclosure of a formular to determine the thresholds. It gave a concept of using hierarchy for storing words, but has no disclosure a detail of the organization of the words. It gave examples of word searching, such as using “dog” to find “wolf”; but has no disclosure an actual searching path from the word “dog” to the word “wolf”, has no disclosure of the linguistic relation between words for practical use. For a language with ten thousand words, as in Chinese, an efficient word organizing and searching method is the key principle of a succesful typing program.

These inventions described few details of the arrangement of the Chinese vocabulary in storage, described no details of an efficient word search method. That explained the reason of the vacancy of real usage of the inventions of this kind at the present time.

Until now, there is no such method available for practical use.

The scope of inventions of this kind is limited, if they have been inspired solely by the available technology. This is the field where technology merges with language and culture. These innovations will be greater, if language knowledge and cultural background come along, endeavor together.

It is necessary to point out that commingling the simplified Chinese words with the traditional Chinese words in writing is prohibitted by law. However, even the head of the state often makes such mistakes, only those linguistic scholars are able to distinguish them. Inventions of this kind should provide a mechanism to separate these two forms clearly, but

provide a mechanism to refer them conveniently.

Based on the rapid advanced information technology of the last decade, many miraculous computing tasks have become daily reality.

An effective, speedy search method of the Chinese vocabulary is a constant, perpetual demand. The Chinese language has thousands words, each word is not an idle item. Each word has meaning, is a dynamic vigorous unit of art. To list them intelligently, to locate them easily, to select them conveniently, to copy them to the word processor quickly and correctly is a challenging task. Carrying this ancient language to meet demands of 21st century, is an assignment for us to endeavor.

This invention synthesizes the culture with the language and technology, inherits the great inspiration of the prior arts, creates a effective word organizing and searching method, makes the challenging task of Chinese word typing becoming an enjoyable journey.

At this stand point, the present invention offers an innovative permanent solution.



Application number: 09/901,961
Examiner: Hillery, Nathan

Filing Date: 07/10/2000
Art Unit: 2176

Title of the Invention:

On Screen Vocabulary for Ideographic Word Organizing and Searching

Brief Description of the Drawings

Fig.1, the flow chart of locating and entering a word.

Fig.2, the home page.

Fig.3, a typical display of a word page window.

Fig.4, the complete structure of the Chinese vocabulary storage system.

Fig.5, the flow chart of word relocation.

Detailed Description of the Invention

The present invention splits all available Chinese words into two divisions, the traditional division and the simplified division. The two divisions are structurally identical, virtually three dimensional, parallelly symmetrically collocated, consisting three vocabulary tiers.

Each tier has 26 pages, each of which is sequentially displayed on a computer screen as a floating window.

Each page is divided into a plurality of cells. Each cell is assigned with an individual

address, occupied by one word. Each word occupies at least one address within one division.

The present invention assigns all available Chinese words into 26 dominant meaning groups, each of which consists 3 pages ranking from most frequently used, less frequently used to least frequently used locating within the 3 vocabulary tiers, correspondingly.

For the reason that the traditional division and the simplified division are structurally symmetrical, each cell with its occupant in a division is correspondingly the equivalent of the same cell, same address, same meaning occupant in the opposite division.

Fig.1, illustrates a word locating and selecting flow chart, describing the relationship between the tiers, the relationship between the pages and the relationship between a tier with the subordinate pages thereof, describing a typical process of searching, locating selecting a word, and inputting words into the word processing program. As mentioned above, the two divisions are identical in their structure. One flow chart explains the relationship and the process for both divisions.

Step 100 marks the start, introduces the home page 120. Commands are sent from the interface devices, the keyboard and the pointing device(mouse) 110.

The description of steps 120, the home page, is given in Fig.2.

Step 127, 'Page index' lists all 26 groups with their assigned radicals and strokes, as well as meanings of the vocabulary for quick reference.

Step 128, 'Words store' offers the vocabulary storage entrance to this program.

Step 129, 'Words relocate' allows words to be relocated to tiers, to pages, according to the typist's preference or the usage priority.

Unless the user selects other tiers, the program defaults to the primary tier 122, where contains the most frequently used words. Pages are indexed with alphabet letters of the

keyboard, as one of the efforts of this invention to use existing equipment. For the simplified form of Chinese words, using the lower case of the alphabet, from a to z; for the traditional form of Chinese words, using the upper capital case of alphabet, from A to Z. Each division has 3 tiers. Each tier has 26 pages.

On the primary(default) and secondary tiers, each page has 100 words; on the supplemental tier, each page contains more than 100 words. With 26 pages, the primary tier in a division contains 2000 or more most frequently used words(for the reason that some important words will be multiply listed in different pages), which is adequate for a normal daily written communication. The secondary tier contains another 2600 words. The supplemental tier contains the least frequently used words, wherein each of its 26 pages contains up to 200 words. Altogether, the three tiers within a division contains more than 10,000 words. That includes all words in a modern Chinese dictionary.

Pages, in a same dominant meaning group, indexed by same alphabet letter, store words from most frequently used to least frequently used, ranked from primary, secondary to supplemental within the three tiers, collects words sharing one dominant meaning.

Steps 131 represents all 26 pages of the most frequently used words. To select between the pages, a typist taps the alphabet letter keys on the keyboard with one hand; to select the words, the typist uses the mouse with another hand. Every word in a page is assigned with an address. For 100 words on one page, a two digit number is enough, one number for the column and one number for the row, is easy to handle. A word is addressed by the page alphabet and the column and row numbers thereof. When this process is familiarized by the user, who may key in the addresses to copy the words to the word processor, no need to display the pages on the screen. If a voice device

is equipped, the user may call in the address for the word.

These privileged simplified addresses are for the words on the default tier(pages) only.

For the second tier, each address is pre-fixed with the number 2 before the alphabet

of the page, followed by the column number and the row number. Same rule applied

to the supplemental tier, but pre-fixed with the number 3. The user may key in these

addresses to copy the associated words to the word processor, instead of displaying

these tiers/pages on the screen. For example, a word in the primary tier, in a page

led by letter "a", has its address "a47". A less frequently used word in the same

word group, classified into the secondary tier, has its address "2a35". The small "a" is

for the simplified form, the equivalent traditional form counterparts of these words will

occupy the addresses of "A47" and "2A35". A word in the supplemental tier of the

same word group has an address of "3a1209" or "3A1209".

Tiers are for ranking the usage priority, to arrange words from the most frequently used to

the least frequently used. Switching between the tiers is done by using the up/down keys on

the keyboard. Groups are for classifying the vocabularies, indexed from a to z, selecting by

using the alphabet keys on the keyboard. Words under one dominant meaning, sharing

similar radicals or strokes, are indexed by one alphabet letter as in a same group(more

explanation given in Fig.3).

If a desired word is not in the primary page, "page down" to the same group on the second

tier, or further "page down" to the same group on the supplemental tier.

The three tiers are virtually hierarchical. These 26 pages within a tier is virtually coplanar.

The step 131 is followed by step 132, if the desired word is located, as in the "Y" (yes)

path, the word is copied to the word processor 140. Otherwise, as in the "N" (no) path,

the user switch the page to its second tier, as indicated by step 133. If the desired word is located here as in the step 134 (Y) path, it is copied to the word processor 140. If the word is not located in the second tier (N), switching into the supplemental tier 135. The step 136 is same as step 134, if the word is located. However, if the word is not found, this invention gives the user an opportunity to create the desired word, in step 137, which is then stored in the page of the tier in step 135.

This completes the word locating and selecting process. After the desired word is copied to the word processor 140, the user may select the next word in the same page, may switch to another page to locate it. Step 141 indicates the choice of the user. If no idea of the index of the next word, return to the home page.

The default tier can be bypassed using keyboard or pointing device directly selecting the secondary or supplemental tiers.

Fig.2, illustrates the home page 200, wherein the traditional division 210 and the simplified division 220 are collocated, containing same number of tiers, as well as pages; vocabularies are identical in their meanings, correspondingly assigned to symmetrically same addresses in the opposite divisions. Each word is occupying its associated address in one division as the same word equivalent in the opposite division occupying the exact same address in the opposite division. To switch between the opposite divisions, a user taps the "Shift + Caps" keys. This home page is the starting point to navigate on this program.

Due to a long period of isolation, people familiar with words of one division has difficulty to recognize words in the opposite form. Dictionaries usually list all the available words indiscriminatory, commingle words of these two forms together. Until now, all available Chinese word processing programs mix Chinese words in one package. A typist usually has

difficulty to identify words of one form from the other. Furthermore, keeping all words in an unified form is a good manner, especially important for communicating formally in written language. This present invention offers the separation of these two forms. But finding the equivalent word in the opposite form is easy as tapping two keys.

Within the areas of 210 or 220, choices of 'default', 'second', 'supplement' are listed for direct access to these three tiers. Without making the selections, the program automatically is in the default setting for the primary tier of vocabulary. Area 230 is a matrix of 27 boxes for the index of the word pages, offering direct access to the word pages by pointing and clicking on them, or tapping the alphabet on the keyboard. Again, the default setting is for the primary words. The 26 boxes are indexed by the English alphabet letters on the keyboard, leaving the last one blank for additional expansion.

To index the Chinese words for listing them intelligently, for searching easily, is always a very challenging task for centuries. Until the present time, there is no permanent best solution for every one to satisfy. A principle of this invention is to utilize the existing equipment of a common personal computer, to use the 26 English letters for the indexing seems to be convenient. To classify the thousands of Chinese words into 26 groups, the best way seems to be gathering the words by their principal meanings. The present invention classifies the meanings of the words into 20 groups led by letters from 'a to t', use 'u, v and w' to index verbs and adjectives, uses 'x, y, z' for words difficult to classify and for special words or very basic words.

Using the elements of the universe, such as sun, moon, sky; earth, rock; domestic mammal; bird; fish, water, boat; human, male, female; metal, knife; tool, measurement system; wood, bamboo, etc., as leads to arrange Chinese words into 20 groups. Each group has a dominant

meaning of basic element or elements. 'Tool' and 'measurement system' are arranged in one group, same rule for 'water' and 'boat'. A person needs only a basic knowledge of these elements to directly look into the related pages to locate the desired Chinese words. When writing and typing in progress, meanings of the words in sequence following the thinking of the writers and the typists. One will find this method smooth and natural to use.

Words under one dominant meaning are gathered in one group, indexed by one letter, divided to three tiers. Every page on primary tier has 100 most frequently used words, in most occasions, these words on the primary tier are sufficient for regular communication needs. Each page on the secondary tier has 100 less important words. The supplemental tier contains all words that are not listed in the other two higher priority tiers. Words can be relocated from other two tiers to this tier, or move out of. All modern Chinese word processor, such as the Microsoft Windows 98, the Office / Word 2000, have the abilities to create new words, and further offers a function of associated compound words.

The punctuation marks are arranged as well.

This invention is intended to be a feature, an attachment to a Chinese word processor, such as Microsoft Word 2000, wherein Chinese words are copied and processed.

Area 240 'Page index' is a key leading to a detailed listing of all the pages. A new user will find it handy to look up the indexes with all the "dominant meanings" they carry.

It is shown in Fig.1 as step 127.

Area 250 'Word relocate' pops up a window to exchange words between tiers, groups, as well as in pages. It is shown in Fig. 1 as step 129. Area 260 'Word store' pops another window for words entering into the storage. There are more detail given in Fig.5.

Fig.3 is a typical word page display 310, created by this invention, floating on a typical

Microsoft Word program 300. Showing here is a page in the default tier of 100 primary words under the dominant meaning of 'domestic mammals'.

Bar 311 is for a cursor to be landed and drag the inset window 310 to any location to yield the main window for word processing. This inset window 310 is floating automatically as the typing in progress. Four keys of 312 are for the purpose of the following: (h) key for returning to home page; (+) key for enlargement of the inset window 310; (-) key for reduction the size of it; (x) key for cancelling it.

Area 320 is the matrix of the vocabularies. The top row 321 is the ten Chinese numerals from 1 to 0, marking the columns; the left column 322 is the ten Arabic numerals from 1 to 0, marking the rows. Both of these numerals are used for addressing every single word within the page. Addresses can be keyed in or called in vocally to copy words into the word processing program without using pointing device.

The dominant meaning of this page is domestic mammals, includes: sheep, dog, pig, horse, cow, cat, rat, elephant and camel. Words listed here are either direct relatives of these mammals, such as "fox" and "wolf" are listed with "dog"; or words derived from these mammals, such as "drive" is listed with "horse", "plough" is with "cow".

Interestingly, "monky" is here for the reason that it has the "dog" radical. The user is able to relocate this "monkey" word to a page with other kinds of creatures willingly.

In another page of "water, fish and boat", one will find that "whale" is listed for the same reason of having the "fish" radical, the ancient Chinese created this word long before the modern marin-science discovered that whale was not a fish. However, whale lives with fish in water.

The words on the second row from top in this page, ten of them, are all pronounced

"yang". There are more words with this same pronunciation. But none of them shares similar meaning with each others. The reason for them to be grouped together here is that they share the radical of 'sheep'. An example of how complicated this language is. The word occupies the address 11 (the one at the top left corner) is "oxygen". Listed here for the reason of having same pronunciation of "sheep", having the radical of "sheep". For the reason of having a co-radical of "air", it will be listed again in the page of "air, weather, atmosphere". For the reason of being a frequently used word, it will be listed in another primary page as well. A language is a major part of a culture. It may not be logical, nor rational. A user of this program, knowing Chinese language, will find no problem to understand it. Common words are multiply listed in more than one groups as a principle of this invention.. But, one word usually appears only once in one group. The alphabet at the corner, 323, is the page index. Clicking at this letter to switch to the other two pages in same word group, to find those less frequently used words, or to return to the default page. As already mentioned, this letter is a part of the addresses of a word. The alphabet letter keys on the keyboard are no longer for spelling the English words, instead, given a new use of indexing word pages and for addressing words thereof. An important feature is added to this program letting the user to relocate words on any pages. Detail is given in Fig.5.

Fig.4, illustrates the complete structure of the vocabulary arrangement. Block 400 indicates the Chinese words split to two divisions: the traditional division 410 and the simplified division 460. Again, these two divisions are identical, from the entire structure to every individual cell setting. Each pair of the two equivalent words of these two forms is located in the corresponding addresses of the two divisions. This arrangement gives the

user a very easy way to find the corresponding word in the opposite form.

The block 470 is the default tier, it is automatically selected for locating primary words.

The block 471 shows 'a to z' pages. The block 480 and 481 are second tier and pages,

contains same number of pages as the primary tier. The block 490 and 491 are

supplemental tier and pages, contains same number of pages, but more words.

A bridge (passage) 478 crosses from block 471 to block 481 indicates that words may be

relocated between them. A bridge 489 crosses from block 481 to block 491 indicates that

words may be relocated between them. A bridge 479 crosses from block 471 to block 491

indicates that words may be relocated between them.

The simplified division components are indexed with lower case of letters, a to z.

For the reason of being identical in their structure, the traditional division has same number

of blocks and bridges as the simplified division. The default tier and pages are 420 and

421. The second tier and pages are 430 and 431. The supplemental tier and pages are

440 and 441. The bridges cross them are 423, 434, 424, on which words travel across.

For cross reference of the vocabulary of the two word form divisions, bridges are

arranged. For the reason of corresponding location of the equivalent words, bridges

cross the corresponding addresses in the corresponding pages only. That is a bridge

cross between two same alphabet letter indexed pages only (one page indexed with

the upper case letter, the other page with the lower case letter) in a same level of tier.

Bridge 427 crosses the pages 421 and 471, for the tiers 420 and 470; bridge 438 crosses

the pages 431 and 481 for the tiers 430 and 480; bridge 449 crosses the pages 441 and 491

for the tiers 440 and 490.

For the reason of being correspondingly equivalent of the cells and its occupants(words)

in these two divisions; if a word in one division is relocated from one tier to another, the equivalent word in the other division will be relocated automatically to comply with this principle.

To emphasize this virtually three dimensional vocabulary arrangement, a x-y-z coordinate 450 is added at the corner. It is for an indication only. It has no value to the structure, is not a part of the invention.

Fig.5, presents a routing of word relocation. At the starting 500, the home page 510 is shown on computer screen. The user clicks on the key 250 on the "home page"(Fig.2) for selecting the "word relocate" 520, to display the old addresses window 530 onto the screen. Three address blanks 531 are available for up to three corresponding words to be relocated simultaneously. For words in the primary tiers, an address contains one alphabet letter followed by one digit column number and one digit row number; in the secondary tiers, an address contains one digit prefix number '2' followed by one letter, one digit column number and one digit row number; in the supplemental tiers, an address contains one digit prefix number '3' followed by one letter, column number(s) and row number(s). Each supplemental tier word page may have more than 100 words, needs two digit column number and two digit row number. Each address blank 531 has six digit space to be fully adequate for accommodation of a full length address.

The user enters the associating address of the word into the blank 531, hit 'Enter' key of computer keyboard, the word will be delivered to the corresponding small window 532 under the blank 531 for identification. Choices are provided on step 540, if the word is incorrect, return to step 530 to repeat the process. If the word is the desired for relocation, as delivered to the small window 551 of the new address window 550, the user

proceeds to enter the new address(new location) of the word into blank 552, and taps the 'Enter' key again. When Enter key is hit, the word and the address blink to indicate that this relocation process is done 560. Steps of 532 and 551 represent same display windows. Block 520 is selected by choosing the 'Word store' key 260 on the "Home Page"(Fig.2). The process of 'Word store' is similar as the second half of 'Word relocate', as in the block 550. The user enters the words prio to entering the associated addresses, tapping the 'Enter' key. The words and the addresses blink to indicate the process is done. The initial vocabulary loading is done by scanning printed images.



Application number: 09/901,961
Examiner: Hillery, Nathan

Filing Date: 07/10/2001
Art Unit: 2176

Summary

The present invention is aimed to solve the problems mentioned above.

The primary objective of this present invention is to maintain the integrity of the Chinese language. Words are not dismantled into strokes, nor spelled by alphabets. Each word is displayed and entered as a complete integral unit. The meanings of words and radicals are used as leads and indexes for organizing and searching words.

The main objective of this present invention is to create a typewriting method that does not require training. A person with minimum knowledge of computer and capable to read, to write Chinese language is able to typewrite Chinese words using this method offered by this invention, with complete accuracy at the virgin attempt. The pace of typing increases as the typing tasks progress.

The traditional way to search a word in a Chinese dictionary is following the orders of the orthodox radicals. It is often a very hectic process. Some words have multiple radicals, some words have hidden radicals, some words have implicit radicals and some words have conjectural ambiguous radicals. Some words have multiple meanings.

In a Chinese dictionary, a word appears only once as a principle of a dictionary, despite the extreme difficulty of finding it. A few attempts of trying different radicals is often needed before locating a word or even finding unsuccessfully. This orthodox radical word arrangement principle has restrained the broad use of the traditional Chinese dictionary.

Simply adapting it to the vocabulary arrangement for word processing is not wise.

The present invention offers an important objective to arranging the words principally from the meaning thereof, the radical order is secondary. Words also filled into pages according to the shape and the dominant stroke thereof. Under this word classifying principle, frequently used words and 'hard to find' words have opportunity to be listed into multiple pages, greatly reducing word searching time. Words are listed under the meaning thereof, following the thinking of the typist, a string of words naturally appear on screen in sequence as the typing in progress

A feature is added to have additional blank space in pages for encouraging the user to fill in additional words conveniently for easy locating. Another feature is also added to have words to be relocated or exchanged to pages that are convenient for the typist.

Until the present time, inventions of this class/sub-class, have become practically use are all adapted the concept of English typing, heavily depend on the keyboard. It is another objective of this invention to minimize the dependence of the keyboard. There is another beneficial objective of the invention to be completely independent from the Chinese word pronuciation, users from different region with different dialect/accent background have an equal opportunity to utilize this method. Furthermore, there are no requirement of memorizing any long set of codes.

There is an additional objective of the present invention. The traditional form and the simplified form of Chinese words are stored in two separated divisions, an user has no fear to type a wrong form of word in a formal written communication. However, these two forms of words exist within same program offered by this invention. It takes only a click on the pointing device or a tap on the keyboard to switch from one to another. It is

convenient for the typist to typewrite an article having these both forms of words in some occasions.

It may be worthy to mention that with both forms of Chinese words in storage, the traditional and the simplified, easily switching between them, the user may use it as a reference for interpreting. It is broadly known that the radicals are the roots of the Chinese words, as mentioned above, words grouped together according to thier logical meaning, thier social or scientific classes, as well as the radicals. This invention offers a good referencing study material for the user to be more familiar with the language.